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EVALUATION OF QUALITY OF LIFE AND AFFECTING FACTORS OF PROSTATE CANCER PATIENTS IN IRAQ

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EVALUATION OF QUALITY OF LIFE AND AFFECTING FACTORS OF PROSTATE CANCER PATIENTS IN IRAQ

BY

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The Department of Nursing

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2022

ACCEPTANCE AND APPROVAL

HASHIM HASAN HUSSEIN HARDANI, the graduate student of The Institute of Health Sciences with the student number of 208205214, has successfully presented her thesis entitled "Evaluation of Quality of Life and Affecting Factors of Prostate Cancer Patients in Iraq" before the jury whose signatures are below, after fulfilling all of the requirements determined by the relevant regulations for the degree of Master of Science:

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ETHICS STATEMENT

The thesis entitled “Evaluation of quality of life and affecting factors of prostate cancer patients in ıraq” which was prepared and presented as a thesis, was written by myself and in accordance with the scientific, academic rules and ethical conduct. The idea/hypothesis of my thesis solely belongs to my supervisor and to me. The research pertaining to the thesis was conducted by myself and therefore, all of the used sentences and interpretations within the work belong to me.

I declare the aforementioned issues to be correct.

Signature

Date

Hashim HASAN HUSSEIN HARDANI

ABSTRACT

EVALUATION OF QUALITY OF LIFE AND AFFECTING FACTORS OF PROSTATE CANCER PATIENTS IN IRAQ

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2022

Background: Prostate cancer (PC) is one of the most common cancers in men. Despite the developments in health services, medical diagnosis, treatment, and prevention methods of cancer, there is an increase in cancer cases. As a chronic disease, cancer can negatively affect the quality of life of patients. **Aim:** The aim of this study is to evaluate the quality of life of prostate cancer patients living in Iraq and the factors affecting their quality of life. **Methods:** The study was conducted with 130 prostate cancer patients who met the sampling criteria of the Oncology Center at Al-Husseini Teaching Hospital in Karbala, Iraq, between March and August 2022. It is a descriptive and cross-sectional study. Data were collected by the patient sociodemographic characteristic form and the European Cancer Research and Treatment Institution quality of life questionnaire (EORTC QLQ-C30). **The results:** The mean age of the participants was 71.03 ± 9.06. 100% of them are married, 52.3% are retired, 29.1% are literate, 61.5% have insufficient economic status, 73.8% live in the city center, 69.2% live with their spouse and children, 75.4% had prostate cancer for 1-5 years, 99.2% had metastases, 53.1% had no chronic disease other than cancer, 53.1% did not receive surgical treatment, but 23.8% of those who received surgical treatment had laparoscopic prostate surgery, and 16.2% had open prostate surgery, 69.2% did not receive chemotherapy, 68.5% did not receive radiotherapy, 87.7% received hormone therapy, 62.3% did not smoke and 90.8% did not drink alcohol. Sub-dimension score averages of the quality of life scale; Role function mean score 5.42, emotional function mean score 4.33, cognitive function mean score 3.86, social function mean score 3.58, general health mean score 7.62, mean dyspnea score 1.68, insomnia average score 2.42, appetite

loss mean score 1.82, nausea and vomiting score mean score of 2.73, mean score of constipation is 1.78, mean score of diarrhea is 1.46, mean score of fatigue is 7.42, mean score of pain is 4.65, mean score of symptom score is 30.10 and mean score of quality of life is 64.12. There is a significant relationship between the quality of life and age, educational status, economic status, place of residence of the patients, duration of prostate cancer, surgical treatment status, type of surgical treatment received, alcohol use status ($p<0.05$). There was no significant relationship between the quality of life of the participants and the type of work, living, having a chronic disease other than cancer, receiving chemotherapy, radiotherapy, hormone therapy, and smoking ($p>0.05$). **Conclusions:** Most prostate cancer patients in Iraq have a moderate quality of life. It was determined that age, education level, economic status of the patient, place of residence, duration of prostate cancer, surgical treatment status, type of surgical treatment, and alcohol consumption had an effective effect on the quality of life.

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Keywords: Prostate cancer, quality of life, Iraq

ÖZET

IRAK'TAKİ PROSTAT KANSERİ HASTALARININ YAŞAM KALİTESİ VE ETKİLEYEN FAKTÖRLERİN DEĞERLENDİRİLMESİ

HASHIM HASAN HUSSEIN HARDANI
Hemşirelik, Yüksek Lisans
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2022

Arka Plan: Prostat kanseri (PC), erkeklerde en sık görülen kanserlerden biridir. Sağlık hizmetleri, kanserin tıbbi tanı, tedavi ve korunma yöntemlerindeki gelişmelere rağmen kanser vakalarında artış görülmektedir. Kronik bir hastalık olan kanser, hastaların yaşam kalitesini olumsuz etkileyebilmektedir. **Amaç:** Bu çalışmanın amacı, Irak'ta yaşayan prostat kanseri hastalarının yaşam kalitelerini ve onların yaşam kalitelerini etkileyen faktörleri değerlendirmektir. **Yöntem:** Çalışma Mart-Ağustos 2022 tarihleri arasında Irak'ın Kerbela kentinde bulunan Al-Husseini Eğitim Hastanesi Onkoloji Merkezi'nin örneklem kriterlerini karşılayan 130 prostat kanseri hastası ile yapılmıştır. Tanımlayıcı ve kesitsel bir çalışmadır. Veriler hasta sosyodemografik özellikler formu ve Avrupa Kanser Araştırma ve Tedavi Kurumu yaşam kalitesi anketi (EORTC QLQ-C30) ile toplanmıştır. **Bulgular:** Katılımcıların yaş ortalaması 71,03 ± 9,06 olup, %100'ü evli, %52,3'ü emekli, % 29.1'i Okur-Yazar, % 61.5'inin ekonomik durumunun yetersiz olduğu, %73.8'inin şehir merkezinde yaşadığı, %69.2'sinin eşi ve çocuklarıyla birlikte yaşadığı, %75.4'ünün 1 ila 5 yıldır prostat kanseri olduğu, %99.2'sinin metastazları olduğu, %53.1'inin kanser dışında kronik bir rahatsızlığı olmadığı, %53.1'inin cerrahi tedavi görmediği ancak cerrahi tedavi görenlerin %23.8'inin Laparoskopik prostat ameliyatı %16.2'sinin de açık prostat ameliyatı olduğu, %69.2'sinin kemoterapi almadığı, %68.5'inin radyoterapi almadığı, %87.7'sinin hormon tedavisi gördüğü, %62.3'ünün sigara içmediği ve %90.8'inin de alkol kullanmadığı sonucuna varılmıştır. Yaşam kalitesi ölçeğinin alt boyut puan ortalamaları; rol fonksiyonu puan ortalaması 5.42, duygusal fonksiyon puan ortalaması 4.33, bilişsel fonksiyon puan ortalaması 3.86, sosyal fonksiyon puan ortalaması 3.58,

Genel sağlık puan ortalaması 7.62, dispne puan ortalaması 1.68, uykusuzluk puan ortalaması 2.42, iştah kaybı puan ortalaması 1.82, bulantı ve kusma puan ortalaması 2.73, kabızlık puan ortalaması 1.78, ishal puan ortalaması 1.46, yorgunluk puan ortalaması 7.42, ağrı skoru puan ortalaması 4.65, semptom skoru puan ortalaması 30.10 ve yaşam kalitesi skoru puan ortalaması 64.12'dir. Yaşam kalitesi ile çalışma durumu, yaş, eğitim durumu, ekonomik durum, hastaların yaşadığı yer, prostat kanserinin süresi, cerrahi tedavi durumu, alınan cerrahi tedavinin türü, alkol kullanma durumu katılımcılar arasında anlamlı bir ilişki söz konusudur ($p<0.05$). Katılımcıların yaşam kalitesi ile iş türü, yaşadığı yer, kanser dışında bir kronik hastalığı olması, kemoterapi alması, radyoterapi alması, hormon tedavisi görmesi, sigara içmesi arasında anlamlı bir ilişki bulunamamıştır ($p>0.05$). **Sonuç:** Irak'taki prostat kanseri hastalarının çoğu orta düzeyde bir yaşam kalitesine sahiptir. Hastanın yaşı, eğitim düzeyi, ekonomik durumu, yaşadığı yer, prostat kanseri süresi, cerrahi tedavi durumu, cerrahi tedavi şekli ve alkol tüketiminin yaşam kalitesi üzerinde etkili olduğu belirlenmiştir.

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Anahtar Kelimeler: Prostat kanseri, yaşam kalitesi, Irak

CONTENTS

ACCEPTANCE AND APPROVAL i
ETHICS STATEMENT ii
ABSTRACT iii
ÖZET v
PREFACE AND ACKNOWLEDGEMENS iix
INDEX OF ABBREVIATIONS AND SYMBOLS x
LIST OF FIGUR ES xi
LIST OF TABLES xii
1. INTRODUCTION 1
1.1 The objective of the Study 3
2. LITERATURE REVIEW 4
2.1. Anatomy of The Prostate 4
2.2. The physiological function of the prostate 5
2.3. Prostate cancer 6
2.4. Risk factors of prostate cancer 6
2.4.1. Age Factors 6
2.4.2. Race Factors 6
2.4.3. Genetics Factors 6
2.4.4. Hormones Factors 7
2.4.5. Environmental Factors 7
2.5. Classification of Prostate cancer 8
2.5.1. Classification of primary tumors TNM 8
2.6. Symptoms of prostate cancer 9
2.7. Diagnosis of Prostate cancer 10
2.7.1. Rectal examination 10
2.7.2. Blood analysis 10
2.7.3. Urinalysis 11
2.7.4. Prostate biopsy 11
2.8. Treatment of prostate cancer 11
2.8.1. Surgical Treatment 12
2.8.2. Radiotherapy 12
2.8.3. Hormonal Therapy 12

2.8.4. Chemotherapy 13
2.8.5. New and future treatments for prostate cancer 13
2.9. Prevention of prostate cancer 13
2.10. Quality Of Life 15
2.10.1. Health-related quality of life 15
2.10.2. Factors Affecting the Quality of Life of Prostate Cancer Patients 16
3. MATERIAL METHODS 18
3.1 Design of the study 18
3.2 Participants and Setting of the Study 18
3.2.1The inclusion criteria 18
3.2.2 The exclusion criteria 18
3.3 Data Collection 18
3.4 Research Instrument 18
3.4.1. Part One: Sociodemographic and Clinical Characteristics Form 18
3.4.2. Part Two: EORTC QLQ-C30 scale 19
3.5 The Ethical Considerations 19
3.6 Data Analysis 20
4. RESULT 21
5. DISCUSSION 42
6. CONCLUSION AND RECOMMENDATIONS 46
REFERENCE 47
APPENDICES 58
CURR ICULUM VITAE 65

PREFACE AND ACKNOWLEDGEMENS

I would like to express my sincere gratitude and thank my supervisor, Assoc. Prof. Dr. FİGEN EROL URSAVAŞ, for her valuable assistance, advice, and guidance in completing the project. I would like to express my sincere gratitude and thanks to my mother, father, sisters, and my wife for all their love and respect and to my teachers and those who guided me in life with love and respect. I would like to thank everyone who helped make this project possible.

I dedicate this work to my country, Iraq, to my parents, family.

HASHIM HASAN HUSSEIN HARDANI

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INDEX OF ABBREVIATIONS AND SYMBOLS

QOL	Quality of life
HRQOL	Health-related quality of life
PSA	Prostate specific antigen
P53	Protein
PAP	Prostatic Acid Phosphatase
TNM	Staging system is based on T (tumour),N (node) and M (metastasis)
SPAP	Secretory prostatic acid phosphatase
PCA	Prostate cancer
MRNA	Messenger ribonucleic acid
TR	Transrectal biopsy
DHT	Dihydrotestosterone

LIST OF FIGURES

Figure 2.1 The prostate gland **5**

LIST OF TABLES

Table 2.1 Staging of Prostate Cancer **8**
Table 2.2 PSA reference ranges for Caucasian men, using the Roche e170 assay ... **10**
Table 4.1 Sociodemographic and Clinical Characteristics **21**
Table 4.2 Descriptive Statistics fort he Quality Of Life **23**
Table 4.3 Analysis of Difference in Life Quality Scores in terms of Age **24**
Table 4.4 Analysis of Difference in Life Quality Scores in terms of Job Type **25**
Table 4.5 Analysis of Difference in Life Quality Scores in terms of Educational Status **26**
Table 4.6 Analysis of Difference in Life Quality Scores in terms of Patient's Economic Status **29**
Table 4.7 Analysis of Difference in Life Quality Scores in terms of Where the Patient Lives **30**
Table 4.8 Analysis of Difference in Life Quality Scores in terms of with Patient Who does the Patient Live with? **31**
Table 4.9 Analysis of Difference in Life Quality Scores in terms of the Duration of Prostate Cancer **32**
Table 4.10 Analysis of Difference in Life Quality Scores in terms of Situation of Having a Chronic Disease Other Than Cancer **33**
Table 4.11 Analysis of Difference in Life Quality Scores in terms of Having Surgical Treatment Situation **34**
Table 4.12 Analysis of Difference in Life Quality Scores in terms of Surgical Treatment Type **35**
Table 4.13 Analysis of Difference in Life Quality Scores in terms of Having Chemotherapy Situation **37**
Table 4.14 Analysis of Difference in Life Quality Scores in terms of Having Radiotherapy Situation **38**
Table 4.15 Analysis of Difference in Life Quality Scores in terms of Having Hormone Therapy Situation **39**
Table 4.16 Analysis of Difference in Life Quality Scores in terms of Using Cigaret Situation **40**
Table 4.17 Analysis of Difference in Life Quality Scores in terms of Using Alcohol Situation **40**

1. INTRODUCTION

Prostate cancer is the leading malignancy in both incidence and morbidity among the male population globally, with its prominence almost surpassing those of infection-related and lifestyle-related diseases. Similarly, according to the Global Cancer Incidence, Meanalit, and Prevalence (GLOBOCAN) study, there were 358 989 deaths and 1,276,106 new cases worldwide in 2018. The prevalence of cancer was greater in developed countries (Bray et al., 2018).

Prostate cancer is the second most frequently diagnosed cancer in men (899 000 new cases, 13.6% of the total) and the fifth most common cancer globally. Nearly three-quarters of reported cases occur in developed countries (644 000 cases). In 2008, the predicted incidence rates of prostate cancer varied more than 25-fold worldwide, with the highest rates being in Australia/New Zealand (104.2 per 100 000), western and northern Europe, and North America. The lowest age-standardized incidence rates were estimated in South-Central Asia (4.1 per 100 000) (WHO, 2011).

Quality of life is of great importance in the field of health because the number of people with chronic diseases is increasing rapidly. When weighing options for the treatment of life-threatening diseases such as cancer, patients and healthcare professionals are interested in understanding both how many additional years of life a certain treatment will add to their lives and how those additional years will affect their quality of life (Eton & Lepore, 2002).

Taylor et al. (2020) assessed the impact of prostate cancer treatment on quality of life. Maintaining sexual function is an extremely important element and a component of their quality of life (Taylor et al., 2020). In the study, health-related quality of life was stable during the first 2 years after diagnosis in all treatment groups except those treated with hormone therapy. Patients receiving hormone therapy significantly impaired health-related quality of life and survival compared to other treatments (Bergius et al., 2020).

A 2012 study evaluated the long-term quality of life (QoL) effect of treatments on localized prostate cancer in patients treated with radical prostatectomy, external beam radiotherapy, or brachytherapy. Outcome-successful brachytherapy is the

Treatment with the least impact on quality of life except for moderate urinary irritative-obstructive symptoms (Katz & Suárez, 2012).

QoL assessment plays a key role in the evaluation and treatment of cancer patients. According to several research studies, sociodemographic characteristics such as sickness stage, treatment methods, location of residence, age, income, education level, and marital status can all have an impact on patients' QoL. All these factors can be classified as either directly related to cancer (e.g., treatment method) or not directly related to cancer, but affecting QoL (e.g., social factors, demographic factors, personal factors) (Gore, 2005).

Health-related quality of life (HRQOL) has lately emerged as a prominent priority in the management of prostate cancer. HRQOL is very subjective and is defined as a person's perception of their well-being as a result of their health or medication. Unlike other malignancies, prostate cancer patients have a longer post-diagnosis life duration, emphasizing the need to improve their health-related quality of life (Bellardita et al., 2013).

Five dimensions with the following identifying characteristics have been found and conceived via research with cancer patients: emotional well-being includes (life satisfaction, body image, control, happiness, the meaning of life, and coping ability); physical well-being includes (eating, appetite, sleep, fatigue, side effects of treatment); Functional wellbeing includes (ability to carry out activities of daily living, general function); spiritual well-being includes (meaning of illness, religiosity, hopefulness, uncertainty) and social well-being includes (social support, relationships, role function, social activities) (Arrington & Bowling, 2001).

Research related to the quality of life has focused primarily on the physical side effects of treatment rather than the psychological effects and emotional distress. Regarding the mental health and well-being of this sizable population of chronically sick, mostly older, male patients, very little is known. Researchers have suggested that variables like cancer staging and treatment affect how well men adjust to PC. Although these variables have been among the most common factors associated with quality of life or well-being, other psychosocial variables warrant attention. Given the disease's potential trajectory, from the immediate impact of the diagnosis of the phase of

Palliative and terminal care (with its attendant existential issues), along with the complexity of psychological adjustment, this is a fertile area for research (Stevenson, 2015).

When the studies were examined, there was just one study that evaluated the quality of life of patients diagnosed with prostate cancer in Iraq (Al-Naqeeb & Hasan, 2017). We think that the results of the research are important for prostate cancer patients in Iraq and will guide future studies. In addition, the study's findings will contribute to the Iraqi literature.

1.1 The objective of the Study

The aim of this study is to evaluate the quality of life and the factors affecting the quality of life of prostate cancer patients living in Iraq.

2. LITERATURE REVIEW

2.1. Anatomy of The Prostate

The Prostate is a member of the male reproductive system, similar to a chestnut, with its head round and downward. It is about 3 cm high and 5.5 cm wide and is located under the bladder and the lower wall of the internal urethra, adjacent to the back to the wall of the rectum. It is made up of glands, fibrous and muscle fibers and is surrounded by a sheath of tissue fibrous, in which the two ducts drain into the seminal vesicles (Bousaïa et al., 2019). Males' prostates serve as their sexual accessory glands. It surrounds the urethra and the neck of the bladder and is situated at the base of the pelvis (See Figure 1.1).

The average weight of a healthy prostate is approximately 11 grams, ranging between 7 and 16 grams (Ranı et al., 2020). A fibroelastic tissue layer encapsulates it, causing the septa to grow inward and separate the prostate into several lobes. Nearly 50 irregularly branching saccular glands, excretory ducts, stroma (cells of connective tissue), blood arteries, and nerves are all housed inside the lobes. The two layers of epithelial cells that coat the glands are cuboidal epithelia (simple cube-shaped) on the outside and tall columnar epithelia on the inside. This urothelium or transitional epithelium has the capacity to contract and expand in response to the volume of fluid contained inside. Testosterone, which is produced in the testicles, is the major hormone found in men. The prostate is regulated by dihydrotestosterone. In peripheral tissues, testosterone is converted to dihydrotestosterone (Khan, 2011).

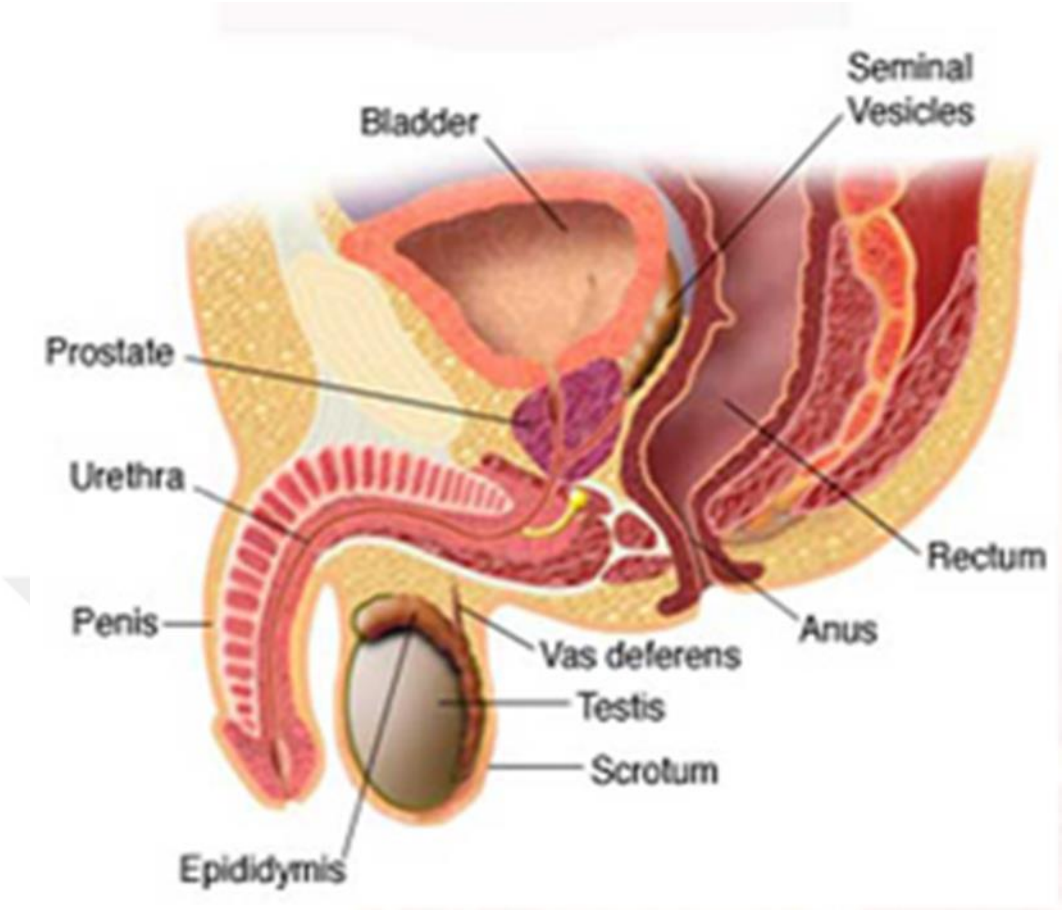

Figure 2.1 The prostate gland (Bousaïa et al., 2019)

2.2. The physiological function of the prostate

Because of the prostate's strategic positioning between the seminal and urinary ducts, the prostate is involved in urination, fertility, and ejaculation. Prostate secretion contributes to spermatogenesis and constitutes 30% of the seminal plasma volume (Claude Abbo, 2006).

The prostate gland's main function is to aid in ejaculation during sexual activity and to store a portion of the seminal fluid. During ejaculation, the prostate's smooth muscles help in the expulsion of semen. The slightly alkaline fluid produced by the prostate makes up 25% of the seminal fluid and allows sperm motility and viability. The alkalinity of the semen balances the acidic environment in the vaginal tract, preserving the viability of the sperm. Prostatic secretion contains important substances such as the prostate-specific antigen (PSA), citrate (18.7 mg/mL), zinc (488 mg/mL), spermine (243 mg/mL), and cholesterol (78 mg/mL) (Tetteh, 2020).

2.3. Prostate cancer

Prostate cancer is a common condition. It represents about 7.1% of all cancers and is the second most common type of cancer in men after lung cancer worldwide, affecting mainly men aged 60 and over. There is no main cause of infection, but there are some factors such as obesity, lack of physical activity, and family history; the latter can increase the risk of developing this disease (Rawla, 2019).

The development of prostate cancer is divided into four stages (1–4). In the first stage, the tumor is only affecting your prostate and hasn't spread to other tissues. While the tumor spread to tissues beyond the prostate and possibly to distant parts of the body during the fourth stage (Melegh & Oltean, 2019).

2.4. Risk factors of prostate cancer

The changes in prostate cancer rates over the past decade and the economic impact they have, are due to the only risk factors currently being identified with certainty: age, race, and family history. Other risk factors such as environment, diet, and a combination of various factors have been suggested, and hence we explain the complex differences in the incidence of prostate cancer (Gharieb, 2017).

2.4.1. Age Factors

The incidence of prostate cancer increases sharply with age. The risk increases significantly from 80 years (Gharieb, 2017), where the incidence is estimated at more than three-quarters (¾) of cases in men aged sixty and older (Gharieb, 2017).

2.4.2. Race Factors

African Americans have a higher incidence of cancer than Caucasians, have higher rates of cancer deaths for African Americans than Caucasians, and Native Americans have fewer cases of cancer than any other group in the United States, But it has the lowest survival rate when diagnosed with prostate cancer. Hispanic and Asian American men have a lower incidence of prostate cancer and a lower mortality rate than Caucasian men (Khudur, 2012).

2.4.3. Genetic Factors

The presence of prostate cancer in first-degree family members (father or brother) increases the risk of 30% of prostate cancer cases. Studies show that 5-10% of cases of prostate cancer in family members are new cases where at least two cases of prostate cancer are identified in the family (Abdul Halim Abu Hamar, 2016).

2.4.4. Hormones Factors

The development of the prostate gland depends on hormonal secretion, and there are studies that indicate that permanent exposure. High levels of testosterone in the blood pose a higher risk than usual, as it works on the growth of the prostate and thus leads to the spread of cancer (Shaneyfelt et al., 2000).

2.4.5. Environmental Factors

- **The role of nutrition in the occurrence of cancer**

A diet rich in polyunsaturated fatty acids increases oxidative stress and thus the production of carcinogenic derivatives, which thus leads to prostate cancer (Haute, 2012).

- **Tobacco and alcohol**

Tobacco increases the risk of prostate cancer by 30%, and this is because it contains the largest amount of toxic substances, as it causes enlargement of the gland, which in turn leads to urinary retention and infections in the urinary tract (Wizard & Linger, 2006). Studies have proven that alcohol is never effective in one way or another (Yeu, 2008).

- **The role of obesity in the occurrence of prostate cancer**

Obesity is not only a risk factor, but also a prognostic factor. According to the American Cancer Society, obesity increases the risk of cancer-related mortality and, together with being overweight, is the leading cause of death in cancer patients for 14% of men. Obesity-related cancer risk and response to treatments (Santoni et al., 2019).

- **The role of cadmium in the occurrence of prostate cancer**

Some studies say that men were exposed to cadmium (white metal) during their work by welding or painting, by electricity, or by manufacturing batteries, as well as

Men who work in plastic factories, have a higher incidence of prostate cancer (Abdul Halim, 2016).

Cadmium causes cancer due to the aberrant gene (Abevantgene), which leads to stimulating cell proliferation, inhibiting the process of apoptosis. Cadmium activates some of the transcription factors of DNA and activates some cancer-generating genes, which leads to a process of cell proliferation with the destruction of DNA, and the process of inhibiting DNA repair occurs, leading to an increase in its destruction. It also affects the apoptosis process that affects cells, leading to the accumulation of aberrant cells, in addition, to its effect on the p53 tumor suppressor gene and discourages his job (Zhou, 2014).

2.5. Classification of Prostate cancer

2.5.1. Classification of primary tumors TNM

Cancer staging: When a patient is diagnosed with a prostate tumor, cancer must be staged to identify whether or not it has spread beyond the prostate. Staging also offers a better awareness of the risk of disease transmission, allowing the appropriate treatment choice to be made. The TNM stage was developed by the American Joint Committee on Cancer and the International Union Against Cancer (AJC/UICC) (Huang et al., 2018). It is used to evaluate the extent of the primary tumor (T), the affected regional lymph nodes (N), and if it has spread or metastasized (M) (See Table 1.1).

Table 2.1 Staging of Prostate Cancer.

Primary tumor (T)	**TX**	Primary tumor evaluation is impossible
	T0	There is no indication of a primary tumor
	Ta	Noninvasive papillary carcinoma
	Tis	Carcinoma in situ: "flat tumor"
	T1	Tumor invades cells the sub epithelium
	T2	Muscle is invaded by tumor T2a tumor invades superficial muscle (inner half) T2b tumor invades deep muscle (outer half)
	T3	Tumor invades perivesical tissue T3a Microscopically

		T3b Macroscopically
	T4	Means the tumor has spread into other body organs nearby, such as the back passage, bladder, or the pelvic WA
Regional Lymph Nodes (N)	**NX**	The lymph nodes cannot be evaluated.
	N0	There were no metastases of regional lymph nodes. Metastasis in a single lymph node measuring 2 cm or less.
	N1	Metastasis in a single lymph node, no more than 2 cm tumor spread to a closest or small number of regional lymph nodes
	N2	Dimension 5 cm in greatest Multiple lymph nodes, none more than 5 cm in greatest
	N3	Metastasis in a lymph node with a maximum dimension of no more than 5 cm dimension tumor spread to regional lymph nodes
Distant Metastasis (M)	**MX**	The tumor has spread to the lymph nodes in the surrounding area.
	M0	No distant metastasis
	M1	Distant metastatic

(Brierley, 2017).

2.6. Symptoms of prostate cancer

Tumors are usually slow-growing and may not have symptoms for many years. In the early stages of prostate cancer, there are often no symptoms. However, due to its location around the urethra, signs of the disease most commonly affect urination. Prostate Symptoms of cancer include frequent urination, increased urination during the night (nocturia), difficulty maintaining a steady flow of urine and blood in the urine (hematuria), and painful urination (dysuria) (Dalsuna, 2007).

It can also affect sexual function, e.g., making it difficult to achieve an erection or making ejaculation painful. If cancer has progressed, it has the potential to spread to other organs, causing bone pain in the pelvis or ribs. Aside from prostatic cancer, many other prostate diseases, such as benign prostatic hyperplasia, cause urinary symptoms. Prostate tumors are felt in only a tiny percentage of cases during the digital rectum examination (DREA) (Tellouche, 2011).

Late signs and symptoms of prostate cancer: Asthenia (fatigue), acute retention of urine, impotence, hematuria pain, weakness, or failure of other organs associated with the presence of metastasis (Tellouche, 2011).

2.7. Diagnosis of Prostate cancer

2.7.1. Rectal examination

The rectal examination consists of examining the prostate by touching it with a finger through the rectal wall to assess the size, consistency, regularity, and tissue softness of the prostate. It can also sometimes detect cancer when a normal PSA value is present. However, this process does not always allow for the detection of tumors (Fournier, 2004).

2.7.2. Blood analysis

- **The prostate specific antigen (PSA) test**

The total PSA test in the serum is the only marker included in the initial evaluation. If its concentration in the blood is zero or less than 4 nanograms, this indicates that the person is in good condition, but if its concentration is slightly higher than this value, this indicates that the person has either an infection (acute or chronic prostate) or benign prostatic hyperplasia. If the patient has prostate cancer, the PSA concentration rises more. Because PSA levels rise with age, cutoff values are age-dependent (Table 1.1). (Khan, 2011).

Table 2.2 PSA reference ranges for Caucasian men, using the Roche e170 assay.

AGE (YEARS)	REFERENCE RANGES (NG/ML)
50 - 59	0 - 3.5
60 - 69	0 - 4.5
70 - 79	0 - 6.5

(Khan, 2011).

- **Prostatic Acid Phosphatase (PAP) test**

Human prostate-specific acid phosphatase (PAP) is a 100-kDa secreted glycoprotein that is synthesized in the lysosomes of prostate epithelial cells. Its

Association with prostate tissue weight has been determined. PAP is classified into two types: cellular (cPAP, which is highly expressed in prostate cells) and secretory (sPAP, which is expressed solely in the prostate and is mostly secreted in sperm), with different isoelectric points and molecular weights. PAP levels in the blood of PCa patients are elevated, although levels in the prostate are normal (Xu et al., 2019).

2.7.3. Urinalysis

It is an ARNm encoded by the PCA3 gene, which is elevated in prostate and prostate cancer tissue by 66% when compared to normal tissue. A quantitative PCA3-based whole urine test prototype in prostate cancer diagnosis is the Prostate Cancer Gene 3 (PCA3) diagnostic tool. PCA3 is overexpressed in 95% of prostate cancers tested, with a median 66-fold up-regulation compared with adjacent non-neoplastic prostatic tissue. In contrast, KLK3, the gene that encodes for PSA, is not up-regulated in cancer, and PSA mRNA concentrations may therefore be used to normalize the amount of prostate-specific RNA in molecular test samples. PCA3 expression is mostly undetectable in other tissues, including the bladder and testis (Bousaïa et al., 2019).

2.7.4. Prostate biopsy

Prostate Biopsy: There are two main ways to diagnose PCa: the transperineal (TP) biopsy and the transrectal (TR) biopsy. This requires local anesthesia and then orphaned to see if the patient has cancer or not, and has been the standard for detecting PCa, for decades around the world. However, this method underestimates the incidence of PCa with a false negative rate of up to 49%. In addition, TR biopsy causes serious complications such as rectal bleeding, fever, sepsis, hematuria, and acute urinary retent (Xiang, 2019).

2.8. Treatment of prostate cancer

The choice of treatment depends on the histological type, stage, and classification of the prostate, the characteristics of the prostate (its size, and extent of influence on bladder function), the age of the patient, medical and surgical history, and general status of the disease (Walsh, 2005).

2.8.1. Surgical Treatment

The prostate gland and any malignant tissue surrounding it are removed during radical prostatectomy surgery. This is often an excellent therapeutic choice for those whose prostate cancer has not progressed outside of the organ (stages I and II) (Khan, 2011). Surgeons try to preserve the nerves in the nervous system that come into contact with the prostate to reduce the risk of impotence after surgery (Walsh, 2005).

2.8.2. Radiotherapy

External radiotherapy is used to destroy cancer cells by preventing them from multiplying. The latter depends on the tumor, its location, its stage, and the patient's condition. Sometimes it is used alone, to treat tumors that cannot be removed by surgery or with invasive treatment. If the cancer is advanced locally or in the proliferation stage, low-dose external beam radiation therapy is used to relieve the patient from the pain of prostate cancer. Another possible type is brachytherapy, which involves bringing radiation sources into tumors and affecting only cancer cells in the treated area, allowing for more targeted treatment by avoiding excessive radiation (Gharieb, 2017)

Three-dimensional conformal radiation therapy (3D-CRT), focusing just on the afflicted area while sparing healthy tissue around it, uses high-energy x-rays that are precisely molded to resemble the structure of the prostate gland. (Smesbahi et al., 2019). Intensity-modulated radiotherapy (IMRT) allows radiation to be adjusted around the target to protect adjacent organs (James et al., 2014). Radiotherapy side effects include Shmean (bowel disturbances) and urinary symptoms such as urinary retention, incontinence, and irritative voiding (James et al., 2014).

2.8.3. Hormonal Therapy

Hormone therapy is the treatment of the body that stops the release of the male hormone testosterone. Usually, prostate that extends beyond the prostate, surgery, and radiotherapy are futile. It can also be used in addition to radiation treatment. The goal of treatment with hormones is to inhibit the action of endocytosis, participating in the development of prostate cells, where low testosterone prevents the spread of cancer cells and reduces the size and spread of the tumor, where treatment is provided for hormonal regression in the prostate, in 70 to 80% of cases, where it responds to patients well for this treatment (Brawer, 2006).

2.8.4. Chemotherapy

The problem with this treatment is that chemotherapy targets the proliferating cells and destroys the cells in the body tissue, chemotherapy can be given through a vein in one arm or as pills, or through both methods (David, 2013).

Chemotherapy may be used in cases of recurrent or advanced prostate cancer or in those It has not responded to hormone therapy, but it is not usually used to treat early-stage disease. Where chemotherapy is given to make cancer shrink or disappear, even if it is not eliminated from cancer, symptoms can be relieved (Bousaïa et al., 2019).

2.8.5. New and future treatments for prostate cancer

Increased research has led to a range of treatments that reduce prostate cancer and contribute to treatment, some of which will become available soon, like

- **Gene Therapy:** By changing the genetic characteristics of the cancer cell, this type can be used to treat the damage by catching the genes that produce cancer. These treatments may be better, especially in treating cancer in the prostate, because some of them must be injected directly into the tumor, which is easy to do with the prostate (David, 2013)
- **Immune Therapy**: Other promising treatments are also known as immunotherapy antigens or immune cells against cancer cells (David, 2013).

2.9. Prevention of prostate cancer

Prevention is a strategy to impede the spread of cancer. According to estimates, at least 40% of all cancer cases are preventable. Avoidance or mitigation of risk factors, as well as pharmaceutical, dietary, or lifestyle modifications, can be effective prevention strategies. As hormones play a significant role in the prostate, there is a fair chance that prostate cancer can be treated (Weiderpass, 2010).

The conversion of testosterone to dihydrotestosterone (DHT), the primary androgen responsible for prostate development, is facilitated by the enzyme 5-reductase. (Marks, 2004). Because 5-reductase inhibitors lower DHT levels, they are used to treat symptomatic benign prostate hyperplasia (BPH) (Carson & Rittmaster, 2003).

Lycopene, a carotenoid that is a major component of tomatoes and other red fruit and vegetables, is regarded as having "possible protection" against prostate cancer, according to a publication by the World Cancer Research Fund and the American Institute for Cancer Research in 2007 (Elik et al., 2011).

Selenium is an important trace element that has been identified as a viable option for prostate cancer chemoprevention. Several observations support this hypothesis suggesting selenium deficits raised the risk of prostate cancer. However, having a high selenium status or taking selenium supplements reduced the risk of prostate cancer (Kok, 2013).

The incidence of advanced prostate cancer is consistently lower among people who take cholesterol-lowering medications (Coker et al., 2003). This finding offers new avenues for investigation into the part played by cholesterol in the development of prostate cancer. Through anti-inflammatory mechanisms, the use of aspirin and non-steroidal anti-inflammatory drugs may reduce the risk of developing prostate cancer. (Kok, 2013).

Specific fatty acids (linolenic acid): Dietary consumption of some essential fatty acids may influence prostate cancer cell growth and proliferation. Linolenic acid is a fatty acid (FA) that has received a lot of attention. It is an omega-3 fatty acid that has shown inhibitory and pro-progressive effects on prostate cancer (Wu, 2018).

Soy: The interest in studies on soybeans, which are heavily consumed in Asia and have a low incidence of prostate cancer, is becoming more popular. Soy is high in vitamin E and has some selectivity to block the estrogen receptor alpha subtype, which has been associated with prostate cancer. Soy is also high in isoflavones, which cause cell cycle arrest and reduce proliferation in a number of prostate cancer tumor model systems (Goetzl &Vanveldhuizen, 2007).

2.10. Quality Of Life

Although QOL is not a brand-new concept, its defining and characteristic terminology has developed through time. The fields of sociology, psychology, and economics were the original major sources for early QOL study. Throughout the 20th century, QOL was designed as a quantitative measure of social well-being. The foundation of early QOL research was objective measurements (such as income, education, housing, and safety) (Newth, 2012).

The following characteristics are the five dimensions of QOL's distinguishing characteristics: emotional well-being; physical well-being; functional well-being; spiritual well-being; and social well-being (Newth, 2012). Research indicates that the following dimensions of QOL—emotional well-being, physical well-being, and social well-being—have been shown to be affected by prostate cancer, its subsequent treatment, and treatment side effects) Okvat, 2011).

There was a connection between the symptoms of prostate cancer, such as discomfort, tiredness, frequent urination, and erectile dysfunction, and the patient's physical, emotional, and social well-being as well as the emotional and social well-being of their spouses (Newth, 2012).

Prostate cancer-specific QOL studies frequently concentrate on recently diagnosed individuals who had radiation therapy or prostatectomy. Many of the negative effects that individuals who get ADT encounter are exclusive to this therapy group (Mydlo & Godec, 2015).

Many studies show that men undergoing ADT had a generally worse quality of life, weaker physical function and sexual function, more tiredness, and increased hot flashes than those having prostatectomy or radiation when comparing other forms of prostate cancer treatment (Dieperink & Sygeplejerske, 2013).

2.10.1. Health-related quality of life

The term "health-related quality of life" (HRQL) refers to a multifaceted concept that describes an individual's view of their physical, psychological, cognitive, and social functioning as they are influenced by their health and by their capacity to get the care and their satisfaction with it (Au et al., 2010).

Numerous HRQL instruments have been developed, validated, and approved for use in cancer research. The most extensively used and globally validated instruments for cancer patients are the EOR TC QLQ-C30 (European Organization for Basic Research and Treatment Questionnaire) and FACT (Functional Assessment of Cancer Treatment) (Murray, 2015).

For HRQL to be useful, it must be evaluated using the methods and appropriate instruments (Au et al., 2010). Utilized in clinical practice and research, HRQL instruments serve three fundamental functions: identifying differences between persons along a continuum of health, sickness, or disability; predicting outcome or prognosis; and assessing changes that occur within an individual over time (Murray, 2015).

2.10.2. Factors Affecting the Quality of Life of Prostate Cancer Patients

There are several independent variables that could have an impact on the quality of life. The following is a succinct assessment of the research literature's current position as it relates to particular independent variables: demographics (age, race, education, and marital status); medical/illness symptoms and stage of disease; and psychosocial (self-efficacy, social support, communication, appraisal of illness, caregiving, and coping) (Newth, 2012).

The most important variables that predict the poor quality of life in people with prostate cancer are poor mental health as well as lack of partners and lack of influence from physicians. Further investigation should be done on whether the simple presence of a partner positively affects the quality of life or the perceived quality of the relationship. The intimate exerts some influence. Our results showed that mental health can predict the risk of lower levels of well-being. A pre-diagnostic mental health assessment does not exist; however, we evaluated well-defined psychopathological features rather than post-traumatic psychological reactions to a cancer diagnosis. Examination of psychopathological features may be useful in addressing patients' unmet needs for psychosocial support rather than pre-selecting patients to provide (Segrin et al.,2012; Korfhage et al.,2006).

Approximately 50% of men with prostate cancer will receive androgen deprivation therapy, most for at least 2–3 years (Shahinian et al., 2005). Although androgen deprivation therapy has survival benefits, it is associated with numerous

Adverse effects on the quality of life of patients in terms of sexual and psychological function and a lot of symptoms, including hot flashes, fatigue, decreased bone mass, muscle loss, sexual dysfunction, and psychological distress such as anxiety and depression (Casey et al., 2012).

Most studies found the factors that negatively affect the quality of life in patients with prostate cancer are poor mental health, recent diagnosis, perceived social support, self-esteem and healthy control site, kidney problem, urinary tract problem, aging, employment status, psychosocial variables, body mass index and level of PSA, adjuvant hormone therapy, treatment-related adverse events, African American ethnicity, surgery, radiation, the timing of treatment, pretreatment tumor characteristics, physiological and psychiatric symptoms, higher clinical stage and overall comorbidities (Bellardita et al.2013; Lam et al., 2013; Kim et al.,2017 ; Bradley et al.,2004 ;Harju et al.,2018 ; Schafer et al.,2008; Lehto et al.,2019).

The factors that increase QOL for patients with prostate cancer are high education level, own monthly expenses for treatment and disease stage 1 or 2, communication skills, knowledge of health problems, and own physical condition (Kyrdalen et al.,2013; Kim et al.,2017).

Patients in Iraq who have prostate cancer report varying levels of distress over their overall quality of life and the patients' day-to-day lives are marked by a modest degree of unpredictability. In terms of Specific QOL, the overall result indicated that a moderate evaluation of the quality of life was obtained. Nevertheless, the evaluation of some domains was lower than that of others, particularly the domains of sexual confidence, sexual intimacy, and prostate-specific antigen (PSA) worry. Other domains accounted for moderate responses, and these were things like urinary control, masculinity and self-esteem, health worry, cancer control, informed decision, and outlook. On the other hand, marital affection, sexual intimacy, and regret accounted for high responses. As a result, prostate cancer patients have instability in their daily life cycle, but only to a moderate degree (Hasan & Galib, 2017; Al-Naqeeb, 2017).

3. MATERIAL METHODS

3.1 Design of the study

It is a descriptive and cross-sectional study.

3.2 Participants and Setting of the Study

The research data were from the Al-Husseini Teaching Hospital in Karbala, Iraq. The universe of the study was composed of men who applied to the cancer center between March and August 2022. The sample consisted of men who fulfilled the sampling criteria (n = 130). As a result of the G Power analysis, the sample size was determined as 130 with 95% confidence and 0.03 significance level.

3.2.1 The inclusion criteria

The study's population will include individuals all aged male who has prostate cancer in Al-Husseini Teaching Hospital in Karbala, Iraq; all participants speak and understand Arabic. All patients live in Iraq.

3.2.2 The exclusion criteria

Those with a mental or cognitive disability, and having hearing problems, those who refused to give consent were also excluded.

3.3 Data Collection

Data were collected using a paper-based questionnaire and interviews with patients who met the inclusion criteria until we reach 130 participants. Patients from all governorates of Iraq were met at Al-Husseini Teaching Hospital in Karbala, Iraq. It takes approximately 15 minutes for each patient to answer the questionnaire. The data were collected from March and August 2022.

3.4 Research Instrument

Two parts of the data collection tools were used: The sociodemographic and Clinical Characteristics Form and the European Organization for the Research and Treatment of Cancer, quality of life questionnaire (EORTC QLQ-C30).

3.4.1. Part One: Sociodemographic and Clinical Characteristics Form

It consists of 17 questions, including the patient's age, marital status, occupation, educational status, income satisfaction, place of residence, with whom they live, duration of prostate cancer, metastasis status, chronic disease, surgical treatment, type of surgery, chemotherapy, radiotherapy, hormone therapy status, smoking and use of alcohol.

3.4.2. Part Two: EORTC QLQ-C30 scale

EORTC QLQ-C30 scale was employed in this study. It is a 30-item questionnaire evaluating the quality of life. It consisted of five subscales (physical, role, cognitive, emotional, and social), three symptom scales (fatigue, pain, and nausea or vomiting), and one general health and quality of life item. The scores of the subscales are calculated according to the scoring guide of the measuring instrument. All subscale scores range from 0 to 100, where high scores represent better levels of functioning, in contrast to symptom scales, where higher scores indicate higher levels of problems. In 1986, the European Organization for Research and Treatment of Cancer (EORTC) launched a research program to develop an integrated, modular approach to assessing the quality of life of patients participating in international clinical trials. In 1993, the questionnaire was reviewed for reliability and validity in 13 countries. The results meant that the EORTC QLQ-C30 is a reliable and valid measure of cancer patients' quality of life (Cronbach's alpha ≥ 0.70 for all items) (Sprangers et al., 1996).

The scale was translated into Arabic by Bener et al. The reliability (internal consistency) of the questionnaire was tested with Cronbach's alpha coefficient and the acceptable value to be met is > 0.70. The study concluded that the scale is valid and reliable for use among Arab populations (Bener et al., 2017).

3.5 The Ethical Considerations

The approval of the Ministry of Health and Environment of Iraq/Karbala Health Department /Training and Human Development Center was obtained according to Ministry Decision No: 372 on 1-3-2022. The student researcher also received a research ethics decision from Çankırı Karatekin University number: 25 on 11-03-2022 (Appendix 2). The consent of all patients was obtained before sample collection. Medical ethics were observed in accordance with the Declaration of Helsinki.

3.6 Data Analysis

Data analysis was done with SPSS 24.0. In the study, the scale scores were calculated and the kurtosis and skewness coefficients were examined to determine the conformity of the scores in the normal distribution. It is considered sufficient for normal distribution. Parametric test techniques were used in the study due to the normal distribution of scores. The t-test and ANOVA test were used to analyze the variation of the scale score according to demographic characteristics.

4. RESULT

Table 4.1 Sociodemographic and Clinical Characteristics (n = 130).

Variable		**Min - Max**	**Mean ± SD**
Age (Years)		43 - 100	71.03 ± 9.06
		n	**%**
Age Groups	From 40-59	13	10.0
	From 60-79	97	74.6
	From 80-100	20	15.4
Marital Status	Married	130	100.0
	Single	0	0.0
Job Type (Occupation)	Free job	57	43.8
	Employe	5	3.8
	Retires	68	52.3
Education state for the patient	Illiterate	26	20.0
	Read & Write	38	29.2
	Primary	28	21.5
	Intermediate	12	9.2
	Secondary	8	6.2
	College & More	18	13.8
Economic Status	Sufficient	50	38.5
	Insufficient	80	61.5
Location of the setting	City center	96	73.8
	Suburbs	34	26.2
Whom do you live with?	Single	2	1.5
	With my wife	34	26.2

	With my wife and children	90	69.2
	With my children	4	3.1
	In the home for the elderly	0	0.0
How long have you had prostate cancer?	Under 1 year	19	14.6
	From one to five years	98	75.4
	From six to ten years	13	10.0
Are there metastases?	Yes	129	99.2
	No	1	0.8
Do you have a chronic disease other than cancer?	Yes	61	46.9
	No	69	53.1
Have you had surgical treatment?	Yes	61	46.9
	No	69	53.1
Which surgery was performed as a surgical treatment?	No surgery	69	53.1
	Open prostate surgeries	21	16.2
	Laparoscopic prostate surgery	31	23.8
	Laser Prostatectomy	9	6.9
Have you received chemotherapy?	Yes	40	30.8
	No	90	69.2
Have you received radiotherapy?	Yes	41	31.5
	No	89	68.5
Have you received hormone therapy?	Yes	114	87.7
	No	16	12.3
Smoking	Yes	49	37.7
	No	81	62.3
Use of Alcohol	Yes	12	9.2

	No	118	90.8

According to the results of the analysis, it is known that the youngest of 130 people is 43 years old and the oldest is 100 years old. In addition, it was concluded that the average age of the individuals was 71 as shown in Table 4.1.

When the distribution of individuals according to their demographic characteristics is examined; 74.6% of them were between the ages of 60-79, 100% were married, 52.3% were retired, 29.1% were able to read & write, and 61.5% had insufficient economic status, 73.8% lived in the city center, 69.2% lived with their wife and children, 75.4% had prostate cancer for 1-5 years, 99.2% had metastases, 53.1% of them did not have a chronic disease other than cancer, 53.1% did not receive surgical treatment, but 23.8% of those who received surgical treatment had laparoscopic prostate surgery, 16.2% had open prostate surgery, 69.2% did not receive chemotherapy, 68.5% did not receive radiotherapy, 87.7% received hormone therapy, 62.3% did not smoke and 90.8% did not use alcohol as shown in Table 4.1.

Table 4.2 Descriptive Statistics for the Quality Of Life.

	N	Minimum	Maximum	Mean	Std. Dev.
Role functioning	130	2.00	8.00	5.42	2.03
Emotional functioning	130	2.00	8.00	4.33	1.73
Cognitive functioning	130	2.00	8.00	3.86	1.53
Social functioning	130	2.00	8.00	3.58	1.78
Global health status	130	2.00	14.00	7.62	2.76
Dyspnoea	130	1.00	4.00	1.68	0.86
Insomnia	130	1.00	4.00	2.42	1.08
Appetite loss	130	1.00	4.00	1.82	0.97
Nausea and vomiting	130	2.00	8.00	2.73	1.27
Constipation	130	1.00	4.00	1.78	0.87
Diarrhoea	130	1.00	4.00	1.46	0.72

Fatigue	130	3.00	12.00	7.42	2.15
Pain	130	2.00	8.00	4.65	1.74
Symptoms	130	15.00	60.00	30.10	8.38
Quality of Life	130	38.00	107.00	64.12	13.12

According to the findings of the study, the average role function score is 5.42, the mean emotional function score is 4.33, the mean cognitive function score is 3.86, the mean social function score is 3.58, the mean global health status score is 7.62, the mean of dyspnoea score is 1.68, the mean of insomnia score is 2.42, the mean of appetite loss score is 1.82, mean nausea and vomiting score is 2.73, the mean constipation score is 1.78, the mean diarrhea score is 1.46, the mean fatigue score is 7.42, the mean pain score is 4.65, the mean symptoms score is 30.10 and quality of life mean score was 64.12 as shown in Table 4.2.

Table 4.3 Analysis of Difference in Life Quality Scores in terms of Age.

Domains		**N**	**Mean**	**SD**	**F**	**P**
Physical Function	From 40 -59	13	9.85	3.65	**1.203**	**0.304**
	From 60 -79	97	11.25	4.08		
	From 80 -100	20	12.00	3.11		
Role Function	From 40-59	13	5.00	1.73	**0.298**	**0.743**
	From 60-79	97	5.46	2.08		
	From 80-100	20	5.45	2.06		
Symptoms	From 40 -59	13	27.92	5.91	**0.920**	**0.401**
	From 60 -79	97	30.67	8.89		
	From 80 -100	20	28.75	7.01		
Cognitive Function	From 40 -59	13	2.77	0.93	**4.120**	**0.018***
	From 60 -79	97	3.94	1.55		

	From 80 -100	20	4.20	1.51		
Social Function	From 40 -59	13	2.92	1.04	**1.041**	**0.356**
	From 60 -79	97	3.68	1.83		
	From 80 -100	20	3.55	1.88		
Economic Function	From 40 -59	13	2.69	1.11	**1.800**	**0.170**
	From 60-79	97	2.34	1.14		
	From 80 -100	20	1.95	1.10		
General Health	From 40 -59	13	8.54	1.66	**1.815**	**0.167**
	From 60 -79	97	7.35	2.87		
	From 80 -100	20	8.30	2.60		
Quality of Life Questionnaire	From 40 -59	13	59.69	10.35	**0.830**	**0.438**
	From 60 -79	97	64.69	13.85		
	From 80 -100	20	64.20	10.84		

***p<0,05, SD = Standard deviation, f=ANOVA, p = probability value**

The cognitive function score shows a statistically significant difference in terms of the age of the patients (p<0.05). According to the average scores, it was observed that those between the ages of 80-100 had higher scores than those between the ages of 40-59 as shown in Table 4.3.

Table 4.4 Analysis of Difference in Life Quality Scores in terms of Job Type.

Type of Job		**N**	**Mean**	**SD**	**F**	**P**
Physical Function	Free job	57	11.21	4.47	**0.263**	**0.769**
	Employe	5	10.00	3.67		
	Retires	68	11.32	3.45		
Role Function	Free job	57	5.23	2.21	**0.804**	**0.450**
	Employe	5	4.80	2.68		
	Retires	68	5.62	1.83		

Symptoms	Free job	57	29.30	9.02	**0.788**	**0.457**
	Employe	5	27.80	7.09		
	Retires	68	30.94	7.92		
Cognitive Function	Free job	57	3.74	1.51	**0.363**	**0.696**
	Employe	5	3.80	1.48		
	Retires	68	3.97	1.56		
Social Function	Free job	57	3.35	1.68	**0.987**	**0.376**
	Employe	5	3.40	1.67		
	Retires	68	3.79	1.87		
Economic Function	Free job	57	2.42	1.16	**0.829**	**0.439**
	Employe	5	1.80	1.10		
	Retires	68	2.26	1.11		
General Health	Free job	57	7.88	2.75	**0.674**	**0.512**
	Employe	5	8.20	1.10		
	Retires	68	7.35	2.85		
Quality of Life Questionnaire	Free job	57	63.12	14.28	**0.691**	**0.503**
	Employe	5	59.80	15.12		
	Retires	68	65.26	11.99		

SD = Standard deviation, f= ANOVA, p = probability value

According to the findings of the analysis, there was no statistically significant difference between the quality of life inventory and its sub-dimensions ($p>0.05$) as shown in Table 4.4.

Table 4.5 Analysis of Difference in Life Quality Scores in terms of Educational Status of the Patient.

Educational Status		N	Mean	SD	F	P
Physical Function	Illiterate	26	13.12	3.42	**3.447**	**0.006***
	Read & Write	38	10.76	3.72		
	Primary	28	9.96	3.57		
	Intermediate	12	9.33	2.53		
	Secondary	8	13.75	5.44		
	College & More	18	11.56	4.27		
Role Function	Illiterate	26	6.27	1.61	**1.893**	**0.100**
	Read & Write	38	5.55	1.91		
	Primary	28	5.07	2.07		
	Intermediate	12	4.75	2.05		
	Secondary	8	5.75	2.71		
	College & More	18	4.72	2.19		
Symptoms	Illiterate	26	33.23	6.51	**1.416**	**0.223**
	Read & Write	38	30.47	7.09		
	Primary	28	28.04	8.75		
	Intermediate	12	28.08	6.44		
	Secondary	8	31.75	11.23		
	College & More	18	28.61	11.50		
Cognitive Function	Illiterate	26	4.27	1.51	**1.251**	**0.289**
	Read & Write	38	4.00	1.19		
	Primary	28	3.71	1.51		
	Intermediate	12	3.25	1.29		
	Secondary	8	4.25	2.43		
	College & More	18	3.44	1.82		
Social Function	Illiterate	26	3.58	1.72	**0.855**	**0.513**

	Read & Write	38	3.58	1.70		
	Primary	28	3.36	1.59		
	Intermediate	12	3.00	1.60		
	Secondary	8	4.38	2.33		
	College & More	18	4.00	2.17		
Economic Function	Illiterate	26	2.50	1.17	**0.934**	**0.462**
	Read & Write	38	2.45	1.18		
	Primary	28	2.32	1.06		
	Intermediate	12	2.33	1.15		
	Secondary	8	2.13	1.25		
	College & More	18	1.83	1.04		
General Health	Illiterate	26	6.58	2.45	**1.651**	**0.152**
	Read & Write	38	7.39	2.64		
	Primary	28	8.21	2.86		
	Intermediate	12	8.92	2.43		
	Secondary	8	7.50	2.93		
	College & More	18	7.83	3.13		
Quality of Life Questionnaire	Illiterate	26	69.54	9.06	**1.984**	**0.085**
	Read & Write	38	64.21	10.58		
	Primary	28	60.68	13.17		
	Intermediate	12	59.67	9.75		
	Secondary	8	69.50	21.04		
	College & More	18	62.00	18.07		

***p<0,05, SD = Standard deviation, f= ANOVA, p = probability value**

The physical function score shows a statistically significant difference in terms of the educational status of the patient ($p<0.05$). According to the average scores, it was

Seen that the individuals who graduated from secondary education had higher scores than the others as shown in Table 4.5.

Table 4.6 Analysis of Difference in Life Quality Scores in terms of Patient's Economic Status.

Economic Status		**N**	**Mean.**	**SD**	**T**	**P**
Physical Function	Sufficient	50	10.48	3.98	**-1.723**	**0.087**
	Insufficient	80	11.69	3.83		
Role Function	Sufficient	50	4.92	2.10	**-2.229**	**0.028***
	Insufficient	80	5.73	1.94		
Symptoms	Sufficient	50	29.04	9.16	**-1.141**	**0.256**
	Insufficient	80	30.76	7.85		
Cognitive Function	Sufficient	50	3.72	1.70	**-0.834**	**0.406**
	Insufficient	80	3.95	1.41		
Social Function	Sufficient	50	3.38	1.90	**-1.035**	**0.302**
	Insufficient	80	3.71	1.70		
Economic Function	Sufficient	50	1.82	1.04	**-4.179**	**0.000***
	Insufficient	80	2.63	1.08		
General Health	Sufficient	50	8.10	3.00	**1.594**	**0.113**
	Insufficient	80	7.31	2.57		
Quality of Life Questionnaire	Sufficient	50	61.46	14.49	**-1.841**	**0.068**
	Insufficient	80	65.78	11.99		

***p<0,05, SD = Standard deviation, t= t test, p= probability value**

The role function score shows a statistically significant difference in terms of the patient's economic status (p<0.05). It was observed that individuals who stated that their economic situation was insufficient, according to the average scores had higher scores than the others as shown in Table 4.6.

The economic function score shows a statistically significant difference in terms of the patient's economic status (p<0.05). It was observed that individuals who stated that their economic situation was insufficient, according to the average scores had higher scores than the others as shown in Table 4.6.

Table 4.7 Analysis of Difference in Life Quality Scores in terms of Where the Patient Lives.

Location of The Setting		**N**	**Mean**	**SD**	**T**	**P**
Physical Function	City center	96	10.95	3.81	**-1.350**	**0.179**
	Suburbs	34	12.00	4.17		
Role Function	City center	96	5.10	2.03	**-3.023**	**0.003***
	Suburbs	34	6.29	1.78		
Symptoms	City center	96	29.39	8.21	**-1.643**	**0.103**
	Suburbs	34	32.12	8.66		
Cognitive Function	City center	96	3.82	1.53	**-0.483**	**0.630**
	Suburbs	34	3.97	1.55		
Social Function	City center	96	3.56	1.81	**-0.237**	**0.813**
	Suburbs	34	3.65	1.72		
Economic Function	City center	96	2.27	1.17	**-0.751**	**0.454**
	Suburbs	34	2.44	1.05		
General Health	City center	96	7.80	2.73	**1.301**	**0.196**
	Suburbs	34	7.09	2.81		
Quality of Life Questionnaire	City center	96	62.90	13.08	**-1.796**	**0.075**
	Suburbs	34	67.56	12.81		

***p<0,05, SD - Standard deviation, t- t test, p - probability value**

Role function scores show a difference that is statistically significant in terms of where the patients live (p<0.05). According to the average mean, it has been observed that

Those living far from the city center have higher scores than those living in the city center as shown in Table 4.7.

Table 4.8 Analysis of Difference in Life Quality Scores in terms of whom the Patient Lives with.

Whom the Patient Lives with		N	Mean	SD	F	P
Physical Function	With my wife	34	11.24	4.08	**0.078**	**0.925**
	With my wife and children	90	11.18	3.88		
	With my children / single	6	11.83	4.26		
Role Function	With my wife	34	5.82	1.88	**0.929**	**0.398**
	With my wife and children	90	5.27	2.07		
	With my children / single	6	5.33	2.34		
Symptoms	With my wife	34	29.29	7.88	**0.305**	**0.738**
	With my wife and children	90	30.29	8.59		
	With my children / single	6	31.83	9.11		
Cognitive Function	With my wife	34	3.79	1.51	**0.151**	**0.860**
	With my wife and children	90	3.87	1.49		
	With my children / single	6	4.17	2.32		
Social Function	With my wife	34	3.24	1.39	**1.284**	**0.280**
	With my wife and children	90	3.67	1.86		
	With my children / single	6	4.33	2.42		
Economic Function	With my wife	34	2.06	1.07	**1.203**	**0.304**
	With my wife and children	90	2.40	1.12		
	With my children / single	6	2.50	1.64		
General Health	With my wife	34	7.26	2.97	**0.517**	**0.598**
	With my wife and children	90	7.70	2.72		

	With my children / single	6	8.33	2.25		
Quality of Life Questionnaire	With my wife	34	62.71	12.53	**0.519**	**0.597**
	With my wife and children	90	64.37	13.13		
	With my children / single	6	68.33	17.35		

SD = Standard deviation, f= ANOVA, p = probability value

According to the results of the analysis, there was no difference that is statistically significant between the quality of life inventory and its sub-dimensions (p>0.05) as shown in Table 4.8.

Table 4.9 Analysis of Difference in Life Quality Scores in terms of the Duration of Prostate Cancer.

Duration of Prostate Cancer		**N**	**Mean**	**SD**	**F**	**P**
Physical Function	Under 1 year	19	9.89	4.18	**1.336**	**0.267**
	From one to five years	98	11.41	3.81		
	From six to ten years	13	11.77	4.27		
Role Function	Under 1 year	19	4.95	1.99	**0.719**	**0.489**
	From one to five years	98	5.46	2.01		
	From six to ten years	13	5.77	2.31		
Symptoms	Under 1 year	19	27.42	7.72	**1.211**	**0.301**
	From one to five years	98	30.45	8.49		
	From six to ten years	13	31.38	8.32		
Cognitive Function	Under 1 year	19	3.42	1.57	**1.073**	**0.345**
	From one to five years	98	3.91	1.53		
	From six to ten years	13	4.15	1.46		
Social Function	Under 1 year	19	4.26	1.63	**1.691**	**0.188**
	From one to five years	98	3.49	1.81		

	From six to ten years	13	3.31	1.65		
Economic Function	Under 1 year	19	2.63	1.12	**1.259**	**0.287**
	From one to five years	98	2.30	1.15		
	From six to ten years	13	2.00	1.00		
General Health	Under 1 year	19	9.11	2.49	**3.368**	**0.038***
	From one to five years	98	7.36	2.76		
	From six to ten years	13	7.38	2.60		
Quality of Life Questionnaire	Under 1 year	19	61.68	13.27	**0.444**	**0.643**
	From one to five years	98	64.37	13.10		
	From six to ten years	13	65.77	13.71		

***p<0,05, SD - Standard deviation, f- ANOVA, p - probability value**

The general health score shows a difference that is statistically significant in terms of the duration of prostate cancer (p<0.05). According to the mean scores, it has been observed that those with cancer for less than 1 year have a higher score than those who have a history of cancer outside the specified periods as shown in Table 4.9.

Table 4.10 Analysis of Difference in Life Quality Scores in terms of Situation of Having a Chronic Disease Other Than Cancer.

Do You Have A Chronic Disease Other Than Cancer?		**N**	**Mean**	**SD**	**T**	**P**
Physical Function	Yes	61	11.93	3.80	**1.969**	**0.051**
	No	69	10.59	3.94		
Role Function	Yes	61	5.69	1.88	**1.446**	**0.151**
	No	69	5.17	2.14		
Symptoms	Yes	61	30.23	7.93	**0.165**	**0.869**
	No	69	29.99	8.82		
Cognitive Function	Yes	61	4.13	1.64	**1.910**	**0.058**

	No	69	3.62	1.39		
Social Function	Yes	61	3.61	1.73	**0.132**	**0.896**
	No	69	3.57	1.84		
Economic Function	Yes	61	2.36	1.11	**0.426**	**0.671**
	No	69	2.28	1.16		
General Health	Yes	61	7.59	2.94	**-0.098**	**0.922**
	No	69	7.64	2.61		
Quality of Life Questionnaire	Yes	61	65.54	12.08	**1.166**	**0.246**
	No	69	62.86	13.94		

SD - Standard deviation, t- t test, p - probability value

According to the findings of the analysis, there was no statistically significant difference between the quality of life inventory and its sub-dimensions (p>0.05) as shown in Table 4.10.

Table 4.11 Analysis of Difference in Life Quality Scores in terms of Having Surgical Treatment Situation.

Have You Had a Surgical Treatment?		**N**	**Mean**	**SD**	**T**	**P**
Physical Function	Yes	61	11.46	4.08	**0.644**	**0.520**
	No	69	11.01	3.78		
Role Function	Yes	61	5.49	2.05	**0.402**	**0.689**
	No	69	5.35	2.03		
Symptoms	Yes	61	30.52	9.36	**0.541**	**0.589**
	No	69	29.72	7.47		
Cognitive Function	Yes	61	3.85	1.57	**-0.063**	**0.950**
	No	69	3.87	1.50		
Social Function	Yes	61	3.61	1.88	**0.132**	**0.896**

	No	69	3.57	1.70		
Economic Function	Yes	61	2.05	1.12	**-2.569**	**0.011***
	No	69	2.55	1.11		
General Health	Yes	61	7.41	2.93	**-0.798**	**0.426**
	No	69	7.80	2.60		
Quality of Life Questionnaire	Yes	61	64.39	14.45	**0.226**	**0.821**
	No	69	63.87	11.93		

***p<0,05, SD - Standard deviation, t- t test, p - probability value**

The economic function score shows a statistically significant difference in terms of the patient's surgical treatment situation (p<0.05). According to the mean scores, it was observed that those who did not receive surgical treatment had higher scores than those who received as shown in Table 4.11.

Table 4.12 Analysis of Difference in Life Quality Scores in terms of Surgical Treatment Type.

Type of surgical treatment		**N**	**Mean**	**SD**	**F**	**P**
Physical Function	No surgery	69	11.01	3.78	**1.042**	**0.376**
	Open prostate surgeries	21	10.33	3.93		
	Laparoscopic prostate surgery	31	11.97	4.36		
	Laser Prostatectomy	9	12.33	3.12		
Role Function	No surgery	69	5.35	2.03	**1.151**	**0.331**
	Open prostate surgeries	21	4.90	2.43		
	Laparoscopic prostate surgery	31	5.94	1.79		
	Laser Prostatectomy	9	5.33	1.80		
Symptoms	No surgery	69	29.72	7.47	**4.832**	**0.003***
	Open prostate surgeries	21	25.67	7.30		

	Laparoscopic prostate surgery	31	32.00	8.73		
	Laser Prostatectomy	9	36.78	11.14		
Cognitive Function	No surgery	69	3.87	1.50	**2.158**	**0.096**
	Open prostate surgeries	21	3.19	1.50		
	Laparoscopic prostate surgery	31	4.13	1.41		
	Laser Prostatectomy	9	4.44	1.88		
Social Function	No surgery	69	3.57	1.70	**0.587**	**0.625**
	Open prostate surgeries	21	3.19	1.69		
	Laparoscopic prostate surgery	31	3.81	1.80		
	Laser Prostatectomy	9	3.89	2.57		
Economic Function	No surgery	69	2.55	1.11	**3.900**	**0.011***
	Open prostate surgeries	21	1.62	0.86		
	Laparoscopic prostate surgery	31	2.26	1.12		
	Laser Prostatectomy	9	2.33	1.41		
General Health	No surgery	69	7.80	2.60	**1.697**	**0.171**
	Open prostate surgeries	21	8.43	2.94		
	Laparoscopic prostate surgery	31	6.87	2.77		
	Laser Prostatectomy	9	6.89	3.14		
Quality of Life Questionnaire	No surgery	69	63.87	11.93	**3.663**	**0.014***
	Open prostate surgeries	21	57.33	13.40		
	Laparoscopic prostate surgery	31	66.97	12.67		
	Laser Prostatectomy	9	72.00	17.12		

***p<0,05, SD = Standard deviation, f= ANOVA, p =probability value**

The symptom score shows a statistically significant difference in terms of the type of surgical treatment received ($p<0.05$). It was observed that those who had laser prostatectomy had higher scores than those who had open prostate surgery as shown in Table 4.12.

The economic function score shows a statistically significant difference in terms of the type of surgical treatment received ($p<0.05$). It was observed that those who had laser prostatectomy had higher scores than those who had open prostate surgery as shown in Table 4.12.

The quality of life inventory score shows a statistically significant difference in terms of the type of surgical treatment received ($p<0.05$). It was observed that those who had laser prostatectomy had higher scores than those who had open prostate surgery as shown in Table 4.12.

Table 4.13 Analysis of Difference in Life Quality Scores in terms of Having Chemotherapy Situation.

Have You Received Chemotherapy?		**N**	**Mean**	**SD**	**T**	**P**
Physical Function	Yes	40	11.40	3.84	**0.342**	**0.733**
	No	90	11.14	3.97		
Role Function	Yes	40	5.75	2.08	**1.253**	**0.212**
	No	90	5.27	2.00		
Symptoms	Yes	40	31.80	9.79	**1.408**	**0.164**
	No	90	29.34	7.62		
Cognitive Function	Yes	40	3.70	1.51	**-0.802**	**0.424**
	No	90	3.93	1.54		
Social Function	Yes	40	3.80	1.79	**0.918**	**0.360**
	No	90	3.49	1.78		
Economic Function	Yes	40	2.50	1.13	**1.239**	**0.217**
	No	90	2.23	1.13		

General Health	Yes	40	7.13	2.59	**-1.356**	**0.177**
	No	90	7.83	2.81		
Quality of Life Questionnaire	Yes	40	66.08	14.34	**1.136**	**0.258**
	No	90	63.24	12.53		

SD - Standard deviation, t- t test, p - probability value

According to the results of the analysis, there was no statistically significant difference between the quality of life inventory and its sub-dimensions (p>0.05) as shown in Table 4.13.

Table 4.14 Analysis of Difference in Life Quality Scores in terms of Having Radiotherapy Situation.

Have You Received Radiotherapy?		**N**	**Mean**	**SD**	**T**	**P**
Physical Function	Yes	41	11.83	4.27	**1.200**	**0.232**
	No	89	10.94	3.74		
Role Function	Yes	41	5.61	2.05	**0.738**	**0.462**
	No	89	5.33	2.03		
Symptoms	Yes	41	30.10	8.95	**-0.002**	**0.998**
	No	89	30.10	8.16		
Cognitive Function	Yes	41	3.73	1.55	**-0.656**	**0.513**
	No	89	3.92	1.52		
Social Function	Yes	41	3.63	1.74	**0.214**	**0.831**
	No	89	3.56	1.81		
Economic Function	Yes	41	2.32	1.15	**0.011**	**0.991**
	No	89	2.31	1.13		
General Health	Yes	41	7.32	2.97	**-0.836**	**0.405**
	No	89	7.75	2.66		

Quality of Life Questionnaire	Yes	41	64.54	13.89	**0.247**	**0.805**
	No	89	63.92	12.83		

SD - Standard deviation, t- t test, p - probability value

According to the results of the analysis, there was no statistically significant difference between the quality of life inventory and its sub-dimensions (p>0.05) as shown in Table 4.14.

Table 4.15 Analysis of Difference in Life Quality Scores in terms of Having Hormone Therapy Situation.

Have You Received Hormone Therapy?		**N**	**Mean**	**SD**	**T**	**P**
Physical Function	Yes	114	11.38	3.98	**1.200**	**0.232**
	No	16	10.13	3.32		
Role Function	Yes	114	5.51	1.96	**1.403**	**0.163**
	No	16	4.75	2.49		
Symptoms	Yes	114	30.58	8.18	**1.752**	**0.082**
	No	16	26.69	9.31		
Cognitive Function	Yes	114	3.96	1.55	**1.902**	**0.059**
	No	16	3.19	1.22		
Social Function	Yes	114	3.58	1.82	**-0.096**	**0.923**
	No	16	3.63	1.54		
Economic Function	Yes	114	2.31	1.12	**-0.224**	**0.823**
	No	16	2.38	1.26		
General Health	Yes	114	7.62	2.75	**0.082**	**0.935**
	No	16	7.56	2.92		
Quality of Life Questionnaire	Yes	114	64.93	12.79	**1.908**	**0.059**
	No	16	58.31	14.44		

SD - Standard deviation, t- t test, p - probability value

According to the results of the analysis, there was no statistically significant difference between the quality of life inventory and its sub-dimensions (p>0.05) as shown in Table 4.15.

Table 4.16 Analysis of Difference in Life Quality Scores in terms of Smoking Situation.

Smoking		N	Mean	SD	T	P
Physical Function	Yes	49	11.63	4.03	**0.927**	**0.356**
	No	81	10.98	3.85		
Role Function	Yes	49	5.69	1.99	**1.217**	**0.226**
	No	81	5.25	2.05		
Symptoms	Yes	49	30.63	7.58	**0.562**	**0.575**
	No	81	29.78	8.87		
Cognitive Function	Yes	49	3.73	1.47	**-0.734**	**0.464**
	No	81	3.94	1.57		
Social Function	Yes	49	3.53	1.65	**-0.268**	**0.789**
	No	81	3.62	1.87		
Economic Function	Yes	49	2.35	1.09	**0.246**	**0.806**
	No	81	2.30	1.17		
General Health	Yes	49	7.29	2.93	**-1.061**	**0.291**
	No	81	7.81	2.65		
Quality of Life Questionnaire	Yes	49	64.86	11.52	**0.500**	**0.618**
	No	81	63.67	14.05		

SD - Standard deviation, t- t test, p - probability value

According to the results of our study, there is no difference that is statistically significant in terms of the relationship between the quality of life inventory and its sub-dimensions (p > 0.05) as shown in Table 4.16.

Table 4.17 Analysis of Difference in Life Quality Scores in terms of Using Alcohol Situation.

Alcohol Drinking		**N**	**Mean**	**SD**	**T**	**P**
Physical Function	Yes	12	9.50	2.84	**-1.610**	**0.110**
	No	118	11.40	3.98		
Role Function	Yes	12	5.92	1.68	**0.896**	**0.372**
	No	118	5.36	2.07		
Symptoms	Yes	12	27.83	7.23	**-0.983**	**0.328**
	No	118	30.33	8.49		
Cognitive Function	Yes	12	3.92	1.68	**0.131**	**0.896**
	No	118	3.86	1.52		
Social Function	Yes	12	2.83	1.19	**-2.161**	**0.046***
	No	118	3.66	1.82		
Economic Function	Yes	12	2.00	1.28	**-1.011**	**0.314**
	No	118	2.35	1.12		
General Health	Yes	12	7.83	2.79	**0.286**	**0.775**
	No	118	7.59	2.76		
Quality of Life Questionnaire	Yes	12	59.83	9.27	**-1.188**	**0.237**
	No	118	64.55	13.41		

***p<0,05, SD - Standard deviation, t- t test, p - probability value**

The social function score shows a difference that is statistically significant in terms of the patient's using alcohol situation ($p<0.05$). According to the mean scores, it was seen that those who do not use alcohol have higher scores than those who use alcohol as shown in Table 4.17.

5. DISCUSSION

In this study, the cognitive function score shows a statistically significant difference in terms of patients' age ($p < 0.05$). Similar results to ours were found in the studies by (Salminen et al., 2003; Joly et al., 2006). In contrast to our findings, studies have revealed a significant cognitive decline (Green et al., 2002). It is believed that the difference in culture and life experience enjoyed by the elderly explains the relationship between aging and cognitive function.

In our study, it was found that there were no significant differences in participants' quality of life and the type of job ($p > 0.05$). These results are similar to the previous studies of (Malik et al., 2015), we discovered that there is no statistically significant difference in participants' QOL based on their employment status. However, the results of (Somasundar et al., 2004), were unlike our study. The difference is thought to be due to having work securing the financial income for the individual and their family, which positively influences QOL, or the patients, the majority of whom are elderly, do not work.

Our study found that there are more secondary education graduates with a better quality of life compared to those with other educational levels ($p < 0.05$). Similar results to our study were found in the studies of (Antunes et al., 2018; El Rasheed et al., 2020). Our results are unlike the studies of (Dweib et al., 2020; Lemos et al., 2015), in which the level of education did not affect QOL. The difference is thought to be due to those who have an education, a healthy culture, and a general culture, which increase their chances of improving their quality of life.

The role function and economic function scores show a difference that is statistically significant in terms of the patient's economic status being insufficient ($p<0.05$). A similar study by (Khudur, 2012), supported this result. This finding contradicts the findings of (Al-Naqeeb & Hasan, 2017), who reported that moderate-income households made up 66% of the sample (P 0.01). This may be due to the different environmental and economic conditions between cities in Iraq and the individuals studied.

Role function scores show a statistically significant difference for the patients who live in city centers ($p<0.05$). Similar results to ours were found in studies by (Kurosaka et al., 2012 & Holm et al., 2018). However, the results of (Kuppen et al., 2020 & Torvinen, 2019), are unlike our study. This is due to the difference in lifestyle and easy mobility.

According to the study's findings, there was no statistically significant difference between the quality of life inventory and its sub-dimensions: whom the patient lives with ($p > 0.05$). Our results are similar to the results of (Torvinen 2019; Kuppen et al., 2020; Nilsen et al., 2015). But in contrast to the study of (Majumder, 2016) who showed a statistically significant difference in QOL. I think this result is because of the different places of study and the culture of the community and the type of care.

The general health score shows a difference that is statistically significant in terms of the duration of prostate cancer less than 1 year ($p<0.05$). These results are similar to the results of (Huang et al. 2010; Brandeıs et al., 2000). But in contrast to the results of (Torvinen, 2019), who found no relationship between disease duration and quality of life. It seems that the quality of life and public health showed positive results with patients less than one year from the diagnosis of the disease. This is due to the lack of progress in the stage of the disease and perhaps only one type of treatment, so the general health will be good.

According to the study's findings, there was no statistically significant difference between the quality of life inventory and its sub-dimensions in terms of the situation of patients with a chronic disease other than cancer. ($p>0.05$). In similar studies by Joseph et al. (2008) and Torvinen (2019), it was shown that there was no relationship between quality of life and having a disease other than prostate cancer, but the results by Murray (2015) are different from our study. It could be due to the type of person chosen for the study, or the effect of other chronic diseases on quality of life is limited in the presence of prostate cancer.

The economic function score shows a statistically significant difference in terms of the patient's surgical treatment situation ($p<0.05$). Participants in a study similar to ours reported a good quality of life after surgical treatment (Eton et al., 2001). In a different study than ours, there was no link between the quality of life and treatment type

(Joseph, 2008). The link between the QOL economic situation and surgical treatment may be due to the fact that most of the surgeries for tumors are free of charge in state hospitals in Iraq.

The symptom score, the quality of life inventory score, and the economic function show a statistically significant difference in terms of the type of surgical treatment received ($p<0.05$). It was observed that those who had a laser prostatectomy had higher scores than those who had open prostate surgery. These results are similar to the results by Avci & Erdiş (2020) and Teixeira (2020) who investigated the relationship between symptoms and quality of life. However, our results contradict the results of Holm et al., (2018) and Majumder (2016) who found no relationship between symptoms and quality of life. Symptoms show a positive difference with laser treatment because laser prostate treatment is the least symptomatic compared to other treatments.

According to the study's findings, there was no statistically significant difference between the quality of life inventory and its sub-dimensions in terms of the patient's having chemotherapy, radiotherapy, hormone therapy, or both ($p > 0.05$). These results are similar to the study by Sadetsky (2009) and Penson et al. (2003). No relationship was shown between initial therapy and 2-year general HRQOL outcomes in men with prostate cancer. This result is unlike a study that found a link between the type of treatment and quality of life by Izci et al. (2018) and Yoltay (2021). This difference between studies may be due to the side effects of treatment that affect the patient's quality of life.

According to the results of the analysis, there was no statistically significant difference between the quality of life inventory and its sub-dimension of smoking ($p > 0.05$). In a similar study, researchers did not observe significant associations between smoking and overall prostate cancer incidence (Hickey et al., 2001; Huncharek et al., 2010). Similar inverse associations between smoking and low-grade prostate cancer have been reported in other studies (Giovannucci et al., 2007; Watters et al., 2009). Smoking may be a type of behavior practiced by patients who feel that it is one of the causes of cancer and affects their quality of life.

The social function score shows a statistically significant difference in terms of the patients using or not using alcohol situation ($p<0.05$). A study similar to ours

Shows a relationship between using alcohol and the prostate (Zhao et al., 2016). In a different study than ours, there is no relationship between using alcohol and the prostate (Taneja, 2019). The link between the quality of life, social function, and non-drinking of alcohol may be due to the nature of Iraqi society, where the person who does not drink alcohol enjoys a social position and there are very few people who drink alcohol.

6. CONCLUSION AND RECOMMENDATIONS

6.1. CONCLUSION

1. Most prostate cancer patients in Iraq have a moderate quality of life.

2. No significant differences were found between the quality of life and type of work, chronic disease other than cancer, chemotherapy, radiotherapy, hormone therapy, Who the Patient Lived with, and smoking for participating patients.

3. A statistically significant difference was found between the sub-dimension quality of life (Cognitive Function, Physical Function, Economic Function, Role Function, General Health, Social Function, Symptoms) and age, level of education, patient's economic status, where the patient lives, duration of prostate cancer, surgical treatment situation, type of surgical treatment and using alcohol of participations.

6.2. RECOMMENDATIONS

1. With a focus on the quality of life and very little research in assessing patients' quality of life in Iraq, I recommend conducting research on the same topic due to the importance of quality of life for patients, and attention to improving patients' quality of life.
2. It is important to regularly develop simple tools, with less time and resources. Monitoring the quality of life, not only in these moments but throughout the process of following up on cancer patients. Future longitudinal QOL monitoring studies should be conducted on these patients.
3. We recommend conducting research comparing the type of treatment and its impact on quality of life.

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APPENDICES

APPENDIX 1. Ethics Committee Evaluation.

APPENDIX 2. Questionnaire

APPENDIX 3. Editing Certificate

APPENDIX 1. Ethics Committee Evaluation.

APPENDIX 2. Questionnaire

QUALITY OF LIFE AND EVALUATION OF AFFECTING FACTORS OF PROSTATE CANCER PATIENTS IN IRAQ

We invite you to the research titled "Quality of life of prostate cancer patients in Iraq and the evaluation of influencing factors" conducted by HASHIM HASAN HUSSEIN HARDANI and DR. FIGEN EROL URSAVAS. Before deciding whether or not to participate in this research, you need to know why and how the research will be conducted. Therefore, it is very important to read and understand this form. If there is something that you do not understand and is not clear to you, or if you want more information, ask us. Participation in this study is completely voluntary. You have the right to refuse to participate in the study or to withdraw from the study at any time after participating. Your response to the study will be interpreted as your consent to participate in the study. Do not be under pressure or suggestion from anyone while answering the questions on the forms given to you. The personal information obtained from these forms will be kept completely confidential and will be used for research purposes only**.**

Socio-demographic Questionnaire

Age	
marital status	1. Married 2. Single
Job of patient	1. Employed 2. Non employed 3. Retired
Education state for patient	1. Illiterate 2. Read & Write 3. Primary 4. Intermediate 5. Secondary 6. College & More

Economic Status	1. Sufficient 2. Insufficient
Where do you spend your life?	1. City center 2. Suburbs
Whom do you live with?	1. Single 2. with my wife 3. With my wife and children 4. with my children 5. In the home for the elderly
How long have you had prostate cancer?	……..
Do you have a tumor	1. Yes 2. No
Do you have a chronic disease other than cancer?	1. Yes 2. No
Have you had surgical treatment?	1. Yes 2. No
Which surgery was performed as a surgical treatment?	1. Open prostate surgeries 2. Laparoscopic prostate surgery 3. Laser Prostatectomy
Have you received chemotherapy?	1. Yes 2. No
Have you received radiotherapy?	1. Yes 2. No
Have you received hormone therapy?	1. Yes 2. No
Smoking	1. Yes 2. No
Alcohol drinking	1. Yes 2. No

EORTC QLQ-C30 (version 3)

We'd like to learn more about you and your health. Please circle the number that best applies to you for each of the questions. There are no "correct" or "incorrect" answers. The information you provide will be kept strictly private.

Physical Function	**Not at All**	**A Little**	**Quite a Bit**	**Very Much**
1. Do you have any trouble doing strenuous activities, like carrying a heavy shopping bag or a suitcase?	1	2	3	4
2. Do you have any trouble taking a long walk?	1	2	3	4
3. Do you have any trouble taking a shmeean walk outside of the house?	1	2	3	4
4. Do you need to stay in bed or a chair during the day?	1	2	3	4
5. Do you need help with eating, dressing, washing yourself or using the toilet?	1	2	3	4

Role Function	**Not at All**	**A Little**	**Quite a Bit**	**Very Much**
6. Were you limited in doing either your Work or other daily activities?	1	2	3	4
7. Were you limited in pursuing your hobbies or other Leisure time activities?	1	2	3	4

Symptoms	**Not at All**	**A Little**	**Quite a Bit**	**Very Much**
8. Were you shmeian of breath?	1	2	3	4
9. Have you had pain?	1	2	3	4
11. Have you had trouble sleeping?	1	2	3	4
12. Have you felt weak?	1	2	3	4
13. Have you lacked appetite?	1	2	3	4

14. Have you felt nauseated?	1	2	3	4
15. Have you vomited?	1	2	3	4
16. Have you been constipated?	1	2	3	4
17. Have you had diarrhea?	1	2	3	4
18. Were you tired?	1	2	3	4
19. Did the pain interfere with your daily activities?	1	2	3	4
Emotional Function	**Not at All**	**A Little**	**Quite a Bit**	**Very Much**
21. Did you feel tense?	1	2	3	4
22. Did you worry?	1	2	3	4
23. Did you feel irritable?	1	2	3	4
24. Did you feel depressed?	1	2	3	4
Cognitive function	**Not at All**	**A Little**	**Quite a Bit**	**Very Much**
25.Have you had difficulty in concentrating on things like reading a newspaper or watching television?	1	2	3	4
25. Have you had difficulty remembering things?	1	2	3	4
Social Function	**Not at All**	**A Little**	**Quite a Bit**	**Very Much**
26. Has your physical condition or medical treatment interfered with your family life?	1	2	3	4
27. Has your physical condition or medical treatment interfered with your social activities?	1	2	3	4
Economic Function	**Not at All**	**A Little**	**Quite a Bit**	**Very Much**
28. Has your physical condition or medical treatment caused you finiancial diff iculties?	1	2	3	4

general health

For the following questions, please circle the number between 1 and 7 that best applies to you

29. How would you rate your overall health during the past week?

1	2	3	4	5	6	7
Very poor						Excellent

30. How would you rate your overall quality of life during the past week?

1	2	3	4	5	6	7
Very poor						Excellent

APPENDIX 3. Editing Certificate

CURRICULUM VITAE

Personal Information

Name and Surname: Hashim HASAN HUSSEIN HARDANI

Education

MSc	Çankırı Karatekin University Graduate School of Health Sciences Department of Nursing	2022-Present
Undergraduate	University of Baghdad College of Nursing Department of Nursing	2010-2014

Work Experience

Year	**Institution**	**Position**
2015-2016	Ain Al-Tamr General Hospital	Emergency Department nurse
2016-2017	Surgical Operations Department	Operations department manager
2017-2019	Ain Al-Tamr Nursing Preparatory School	manager Preparatory
2019-2020	Ain Al-Tamr General Hospital Medical Education Unit	manager Unit